

Exhibit A



National Institute of Allergy and Infectious Diseases
National Institutes of Health

HIV/AIDS

Classes of HIV/AIDS Antiretroviral Drugs

The antiretroviral medications used to treat HIV/AIDS currently are organized into five major drug classes:

Reverse Transcriptase (RT) Inhibitors interfere with the critical step during the HIV life cycle known as reverse transcription. During this step, the HIV enzyme RT converts HIV RNA to HIV DNA. There are two main types of RT inhibitors:

1. Nucleoside/nucleotide RT inhibitors are faulty DNA building blocks. When these faulty pieces are incorporated into the HIV DNA (during the process when HIV RNA is converted to HIV DNA), the DNA chain cannot be completed, thereby blocking HIV from replicating in a cell.
2. Non-nucleoside RT inhibitors bind to RT, interfering with its ability to convert the HIV RNA into HIV DNA.

Protease Inhibitors interfere with the protease enzyme that HIV uses to produce infectious viral particles.

Fusion/Entry Inhibitors interfere with the virus' ability to fuse with the cellular membrane, thereby blocking entry into the host cell.

Integrase Inhibitors block integrase, the enzyme HIV uses to integrate genetic material of the virus into its target host cell.

Multidrug Combination Products combine drugs from more than one class into a single product. To combat virus strains from becoming resistant to specific antiretroviral drugs, healthcare providers recommend that people infected with HIV take a combination of antiretroviral drugs known as highly active antiretroviral therapy (HAART). Developed by NIAID-supported researchers, the HAART strategy combines drugs from at least two different antiretroviral drug classes.

In Development

Another HIV/AIDS drug class known as maturation inhibitors is still in development, but if successful, could potentially prevent HIV from properly assembling and maturing. For example, these treatments could block HIV from forming a protective outer coat or from emerging from human cells.

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Highlights

Washington Post Editorial: A Policy Cocktail for Fighting HIV by Dr. Anthony S. Fauci (Non-government)
April 16, 2009

HHS News Release: U.S. Releases Updated Clinical Guidelines for HIV-Associated Opportunistic Infections
April 16, 2009

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